In the Claims:

The following is a complete listing of the claims.

1. (Currently Amended) A catalyst component useful for the co-polymerization of ethylene and an alpha-olefin, wherein the catalyst component is prepared by:

(i) providing a magnesium halide composite support by treating metallic magnesium with an alkyl halide or aromatic halide, a transition metal compound having the structural formula $M(OR)_aX_{4-a}$, at least one electron donating compound containing at least one ether group, and at least one organo-silicon compound having at least one silicon-oxygen bond; wherein M is selected from the group consisting of Ti, Zr, Hf, V, and Cr; R is a C_{1-20} hydrocarbon, X is halogen, and a is 1 to 4;

(ii) treating the magnesium halide composite support with a halogenized transition metal compound and a chelating ~~diamide~~ diamine compound in the presence of an organo-magnesium compound and one or more compounds selected from the group consisting of ~~organo-magnesium compounds,~~ halogenized silicon compounds[[,]] and halogenized boron compounds.

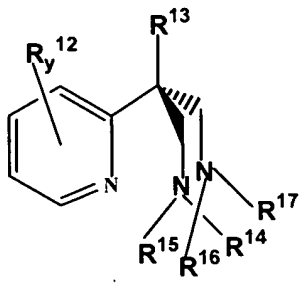
2. (Original) The catalyst component of claim 1, wherein the organo-silicon compound is selected from $Si(OR^1)_bR^2_{4-b}$, $R^3(R^4_2SiO)_cSiR^5_3$, or $(R^6_2SiO)_d$; wherein wherein R^1 is a hydrocarbon having 1 to 20 carbons; R^2, R^3, R^4, R^5 and R^6 are independently hydrogens or hydrocarbons having 1 to 20 carbons; b is 1 to 4; c is 1 to 1000; and d is 2 to 1000.

3. (Currently Amended) The catalyst component of claim 1, wherein the chelating ~~diamide~~ diamine compound has the formula:

$$R^1R^2N(CR^5_2)_xNR^3R^4$$

wherein R^1, R^2, R^3 and R^4 are independently hydrogen, C_{1-20} alkyl, C_{1-20} alkenyl, C_{1-20} alkylsilyl, C_{1-20} alkenylsilyl, aryl, arylsilyl, or halogenated derivatives of C_{1-20} alkyl, C_{1-20} alkenyl, C_{1-20} alkylsilyl, C_{1-20} alkenylsilyl, aryl, or arylsilyl; provided that at least both R^1 and R^3 are hydrogen, trimethylsilyl, or triethylsilyl group; R^5 is hydrogen or C_{1-20} hydrocarbon, and x is from 1 to 7.

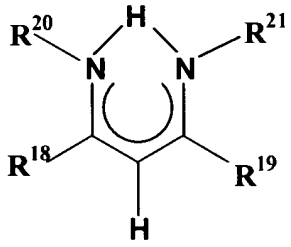
4. (Currently Amended) The catalyst component of claim 1, wherein the chelating ~~diamide~~ diamine compound has the formula:



(II)

wherein R^{12} is independently hydrogen or $C_{1\text{-}20}$ alkyl, or two R^{12} groups may together form a ring, y is 1 or 2; R^{13} is hydrogen or $C_{1\text{-}40}$ alkyl; R^{14}, R^{15}, R^{16} and R^{17} are independently hydrogen, $C_{1\text{-}20}$ alkyl, $C_{1\text{-}20}$ alkenyl, $C_{1\text{-}20}$ alkylsilyl, $C_{1\text{-}20}$ alkenylsilyl, aryl, arylsilyl, or halogenated derivatives of $C_{1\text{-}20}$ alkyl, $C_{1\text{-}20}$ alkenyl, $C_{1\text{-}20}$ alkylsilyl, $C_{1\text{-}20}$ alkenylsilyl, aryl, or arylsilyl; provided that at least both $R^{14}$and R^{16} are hydrogen atom or trimethylsilyl or triethylsilyl group.

5. (Original) The catalyst component of claim 1, wherein the chelating compound has the formula:



(III)

wherein R^{18} and R^{19} are independently hydrogen, $C_{1\text{-}20}$ hydrocarbon, or R^{18} and R^{19} groups may together form a ring; R^{20} and R^{21} are independently hydrogen, $C_{1\text{-}20}$ alkyl, $C_{1\text{-}20}$ alkenyl, $C_{1\text{-}20}$ alkylsilyl, $C_{1\text{-}20}$ alkenylsilyl, aryl, arylsilyl, or halogenated derivatives of $C_{1\text{-}20}$ alkyl, $C_{1\text{-}20}$ alkenyl, $C_{1\text{-}20}$ alkylsilyl, $C_{1\text{-}20}$ alkenylsilyl, aryl, or arylsilyl.

6. (Currently Amended) The catalyst component of claim 1, wherein the halogenated transition metal compound of step (ii) ~~further~~ comprises ~~treating the magnesium halide composite support with~~ a ~~halogenated transition metal~~ compound of the formula $m(M^1X^1_a)\cdot n(M^2X^2_b)\cdot o(THF)$, wherein M^1 and M^2 are independently selected from the group consisting of Ti, Zr, Hf, Al, V, Al,

and Cr; X^1 and X^2 are halogen; a and b are independently 2 to 5; and m, n, and o are independently 0 to 4.

7. (Original) The catalyst component of claim 6, wherein the halogenated transition metal compound is selected from the group consisting of $TiCl_4$, $ZrCl_4$, $HfCl_4$, $TiCl_4 \cdot 2THF$, $TiCl_3 \cdot 3THF$, $3TiCl_3 \cdot AlCl_3$, $CrCl_3 \cdot 3THF$, and $VCl_5 \cdot TiCl_4$, $TiCl_4 \cdot 2THF$, $TiCl_3 \cdot 3THF$, $3TiCl_3 \cdot AlCl_3$, and $CrCl_3 \cdot 3THF$.

8. (Currently Amended) The catalyst component of claim 1, wherein the organo-magnesium compound of step (ii) ~~further~~ comprises ~~treating the magnesium halide composite support with an organo-magnesium~~ a compound having the formula R'MgR", wherein R' and R" are independently $C_{2\text{-}12}$ alkyl groups.

9. (Currently Amended) The catalyst component of claim 1, wherein the one or more compounds selected from the group consisting of halogenized silicon compounds and halogenized boron compounds of step (ii) ~~further~~ comprises ~~treating the magnesium halide composite support with~~ a compound having the formula $MR_{m-a}X_a$, wherein M is silicon ~~a Group 13~~ or boron ~~Group 14 element~~, R is a C1-20 hydrocarbon, X is halogen, m is a number equal to the valence of M, and a is 1 to m.

10. (Original) The catalyst component of claim 1, having the formula $Mg_mTiX_n(OR)_p(Si)_q(D)_r$, wherein $_X$ is halogen, D is a diamine, and m, n, p, q, and r are numbers satisfying inequalities $1 \leq m \leq 61$, $1 \leq n \leq 116$, $0.05 \leq p \leq 50$, $0.1 \leq q \leq 20$, $0.1 \leq r \leq 10$ and $m < n$.

11. (Original) The catalyst component of claim 1, further comprising one or more trialkylaluminum species selected from the group consisting of trimethylaluminum, triethylaluminum, tri-iso-propylaluminum, and tri(n-octyl)aluminum.

12. (Original) The catalyst component of claim 11, wherein the molar ratio of the trialkylaluminum to transition metal is about 1 to about 1000.